Ultramet-L®
4400 Series Filter Assembly (1.5 nm)

Data Sheet MEUL44ENa

Description

The Ultramet-L® 4400 Series Filter Assembly is available with an all 316L stainless steel housing and either a 316L stainless steel or nickel filter. It is designed for ≥ 1.5 nanometer filtration of semiconductor grade gases. The 4400 series filter is recommended for all applications with process gases that are compatible with 316L stainless steel or nickel. For applications with corrosive gases, such as halogen containing acid gases, the nickel filter assembly is recommended only if the gas is known to be anhydrous.

Features & Benefits

- State-of-the-art 316L stainless steel or nickel media
- Preconditioned to ultraclean levels
- Excellent particle removal efficiency vs. pressure drop
- Accommodates extremely high flow rates for the assembly size
- Excellent gas displacement and desorption characteristics
- High temperature and pressure capabilities
- Compact size for ease of installation
- Wide variety of fitting options available
- 100% helium leak tested
- Cleanroom manufactured and packaged
- Housing material meets or exceeds VIM VAR specifications.

Specifications

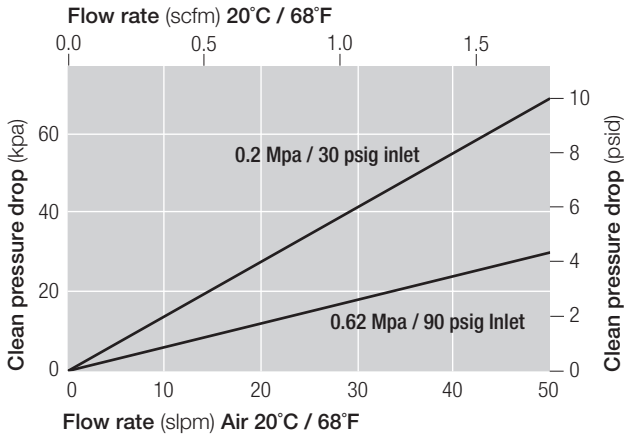
Filter Medium	316L stainless steel or nickel
Internal Surface Finish	≤ 0.18 mm / 7 µin R_a
Internal Surface Chemistry	Cr:Fe (1:1) Chromium enriched
Housing	Electropolished 316L stainless steel housing
	VAR PLUS housing material meets or exceeds typical VIM / VAR specifications
Removal Rating	≥ 1.5 nm
Preconditioned Cleanliness*	< 10 ppb moisture contribution (Qualified per SEMSPEC test method #90120397B-STD)
	< 10 ppb THC contribution (Qualified per SEMSPEC test method #90120396B-STD)
	< 10 ppb O_2 contribution (Qualified per SEMSPEC test method #90120398B-STD)
	No particle contribution above background ≤ 1 particle / (ft^3 or m^3)

Connections	¼", ½" Gasket Seal, Male / Male (VCR[1] or compatible)
	¼" Butt Weld (0.035˝ / 0.89 mm wall)
Maximum Operating Pressure	20.7 MPa at 38 °C / 3,000 psig at 100 °F; 11.6 MPa at 450 °C / 1,685 psig at 840 °F
Maximum Allowable Differential Pressure	316L Stainless Steel Filter: 0.9 MPa at 38 °C / 125 psid at 100 °F; 0.4 MPa at 450 °C / 60 psid at 840 °F
	Nickel Filter: 1.0 MPa at 38 °C / 150 psid at 68 °F 0.5 MPa at 426 °C / 75 psid at 800 °F
Particle Removal Characteristics	10^9 particle reduction at 50 slpm / 1.76 scfm
Leak Rating	100% helium leak tested to 10^{-9} atm·cm^3/s
	Design validated to 10^{-11} atm·cm^3/s
EU Pressure Equipment Directive	Assemblies have been evaluated and are CE marked per the European Union's Pressure Equipment Directive 2014/68/EU

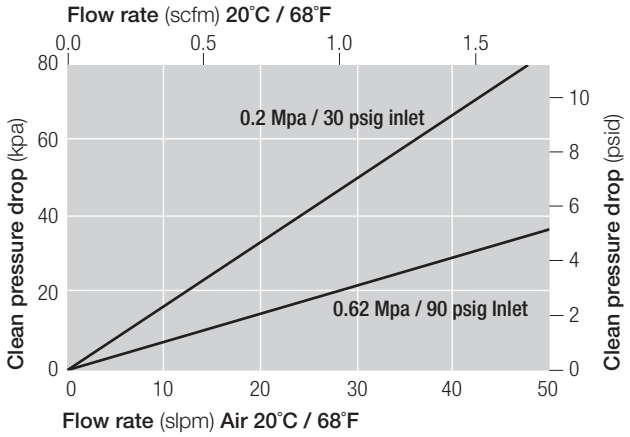
* Gasket Seal only fittings.

[1] VCR is a trademark of Swagelok Co.

Pressure Drop vs. Gas Flow Rate

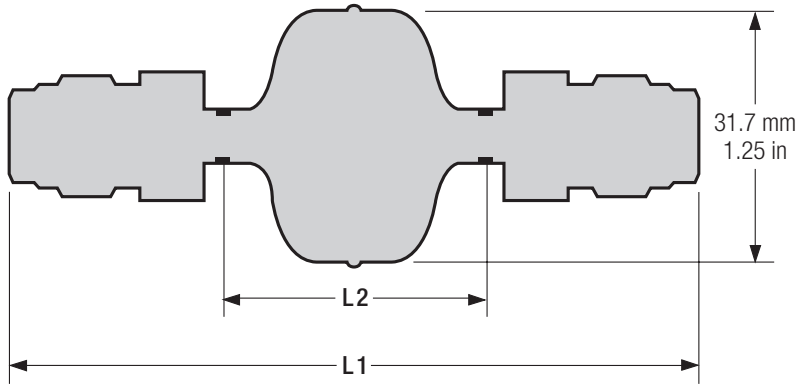


GLFF4400VMM4 - Stainless Steel



GLFN4400VMM4 - Nickel

Dimensions



Part Numbers / Ordering Information

Part Number	Description	Fitting Type (in / mm)	Length (L)
GLFF4400VMM4	All 316L Stainless Steel	¼" Gasket Seal (VCR or Compatible) Male / Male	3.31 / 84 (L_1)
GLFF4400BW4	All 316L Stainless Steel	¼" Butt Weld, 0.035" / 0.89 mm wall	1.75 / 45 (L_2)
GLFN4400VMM4	Nickel Media, 316L Stainless Steel Housing	¼" Gasket Seal (VCR or Compatible) Male / Male	3.31 / 84 (L_1)
GLFN4400VFM4	Nickel Media, 316L Stainless Steel Housing	¼" Gasket Seal (VCR or Compatible) Female Inlet / Male Outlet	2.80 / 71 (L_1)
GLFN4400VMF4	Nickel Media, 316L Stainless Steel Housing	¼" Gasket Seal (VCR or Compatible) Male Inlet / Female Outlet	2.80 / 71 (L_1)
GLFN4400VMM8	Nickel Media, 316L Stainless Steel Housing	½" Gasket Seal (VCR or Compatible) Male / Male	3.31 / 84 (L_1)
GLFN4400BW4	Nickel Media, 316L Stainless Steel Housing	¼" Butt Weld, 0.035" / 0.89 mm wall	1.75 / 44 (L_2)

Unit conversion: 1 bar = 100 kilopascals

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